**Al-Maarefa College of Medicine**

**ENDOCRINE BLOCK (ENDO412)**

**Semester 152 – Academic Year: 2015 - 2016**

**ILOs & Guidelines / Requirements**

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| **Requirements to Achieve The ILOs** | **The Intended Learning Outcomes (ILOs)** |
| **Physiology**   * Understanding the common aspects of neural and endocrinal regulations. * Describing the chemical nature of hormones * Recalling the overall hormonal functions * Recognizing the different types of hormone interactions and the significance of hormone concentrations * Explaining the factors influencing the plasma concentrations of hormones * Identifying the most common causes of endocrine dysfunctions.   **Biochemistry**   * Describing the different mechanisms of action of hormones * Recalling hormones that bind to cell surface receptors and hormones that bind to intracellular receptors | * **Identifying the general aspects endocrine system as regards concepts of classifications of hormones, overall endocrine system functions, mechanisms of action of hormones, hormonal levels and tissue responses with reference to impacts on understanding endocrinal dysfunctions.** |
| **Anatomy, Histology and Embryology**   * Describing the anatomical structure of the pituitary gland. * Enlisting the relations of the pituitary gland. * Enumerating different parts of the pituitary gland. * Recognizing the blood supply of the pituitary gland. * Discussing the development of the pituitary gland. * Identifying the microscopic structure of the pituitary gland. * Define the different cell types of the pituitary gland.   **Physiology**   * **Distinguishing between the parts of the pituitary gland with identifying the hormones secreted by each part** * **Explaining how the hypothalamus regulates both the posterior and anterior pituitary glands** * **Describing negative feedback inhibition in the regulation of hypothalamic and anterior pituitary hormones** * **Recognizing the relation between higher brain function & anterior pituitary secretion** * **Enlisting factors influence growth beside growth hormone (GH)** * **Discussing the metabolic effect of GH** * **Describing the relation(s) between GH & insulin-like growth factors (IGFs)** * **Explaining how GH stimulates growth of both soft tissues & skeleton** * **Describing factors influencing GH secretion** * **Describing the effect(s) of GH abnormalities** * **Enlisting other hormones affecting growth besides GH**   **Pathology**   * Classifying different types of pituitary adenoma * Discussing the effects of the functional pituitary tumors on different age groups. * Recognizing the pathological aspects of the differentiation between pituitary adenoma and carcinoma.   **Pharmacology**   * Understanding the pharmacological aspects of synthetic pituitary hormones | * **Recognizing the anatomical, histological, embryological and physiological aspects of the pituitary gland and its hormones** * **Understanding the biochemical and pathological concepts of diseases of the pituitary gland with reference to impacts on clinical aspects** * **Recognizing the pharmacological aspects of synthetic pituitary hormones** |
| **Anatomy, Histology and Embryology**   * Discussing the anatomical structure of the thyroid gland in addition to the parathyroid glands. * Recognizing the blood supply of the thyroid and parathyroid glands. * Describing the nerve supply and lymphatic drainage of the thyroid and parathyroid glands. * Discussing the microscopic structure of the thyroid and parathyroid glands. * Discussing the development of the thyroid gland with its congenital anomalies.   **Physiology**   * **Identifying the hormones of the thyroid gland and mechanisms of their regulation** * **Recognizing the various disorders of thyroid function**   **Biochemistry**   * Identifying the biosynthesis, storage and secretion of thyroid hormones. * Describing the different metabolic actions of thyroid hormones * Explaining the biochemical basis of the clinical consequences of over secretion and under secretions of the thyroid hormones. * Understanding the biochemical and clinical aspects of the applications of the laboratory thyroid function tests in assessing the thyroid status.   Immunology   * Identifying the mechanism of development of endocrine autoimmune disorders. * Recalling the autoimmune diseases of thyroid gland. * Recognizing the major immunologic and clinical features of Hashimoto’s thyroiditis. * Describing the microscopic features of thyroid gland during Hashimoto’s thyroiditis. * Evaluating the clinical application of serological investigations in diagnosis of Hashimoto’s thyroiditis. * Discussing the clinical and immunologic features of Graves’ disease. * Distinguishing between the autoantibodies present in both Graves’ disease and Hashimoto’s thyroiditis.   **Pathology**   * Understanding the definition of goiter. * Listing different causes of goiter. * Discussing the clinical manifestations of toxic goiter. * Recognizing the classification of thyroid tumors. * Explaining the differences between various types of thyroid carcinoma * Enumerating different causes of thyroiditis. * Discussing the criteria of each type of thyroiditis.   **Pharmacology**   * Classifying the antithyroid drugs * Understanding the role of radioiodide thioureylene and iodine in treating hyperthyroidism. | * **Identifying the anatomical, histological, embryological physiological aspects of the thyroid gland and its hormones.** * **Understanding biochemical, immunological and pathological concepts of diseases of the thyroid gland with reference to impacts on clinical aspects** * **Recognizing the pharmacological aspects of treatment of diseases of the thyroid gland.** |
| **Physiology**   * Identifying the physiological actions of the parathyroid hormone, calcitonin hormone and vitamin D in calcium homeostasis.   **Biochemistry**   * Discussing in general calcium sources and distribution in the body.. * Describing the concepts calcium homeostasis. * Understanding the roles of active vitamin D, parathyroid hormone and calcitonin hormone in calcium homeostasis * Explaining the biochemical and clinical aspects of disturbance in calcium homeostasis as regards the laboratory diagnosis and bases of strategies of treatment. | * **Understanding the main concepts of the roles of the endocrine system calcium homeostasis** * **Recognizing the biochemical and clinical implications of disturbances in calcium homeostasis.** |
| **Anatomy, Histology and Embryology**   * Describing the anatomical structure and relations of the suprarenal glands * Recognizing the blood supply of the suprarenal glands * Discussing the microscopic structure of the suprarenal glands * Understanding the development of the suprarenal glands   **Physiology**   * Recognizing the parts of the suprarenal glands with listing of the hormones secreted by each part. * Recalling the functions of hormones of the adrenal medulla. * Understanding the steroid hormones origins and physiological functions. * Explaining the regulatory mechanisms of adrenal gland secretions with emphasis of its role in stress.   **Biochemistry**   * Briefing the functions of the adrenal cortical hormones * Describing the metabolic roles of the glucocorticoids * Recalling causes of elevated serum cortisol levels. * Understanding causes and biochemical basis of the clinical aspects of Cushing` disease and adrenocortical hypofunction * Verifying the applications of the laboratory investigations for diagnosing cases of suspected adrenocortical hyperfunction and hypofunction.   **Immunology**   * Recognizing the immunological and clinical features of the Addison`s disease * Understanding the roles of the laboratory serological investigations in diagnosing the adrenal gland diseases.   **Pathology**   * Recalling tumors arising from the adrenal cortex * Recalling tumors arising from the adrenal medulla * Discussing the pathological and clinical features of Pheochromocytoma.   **Pharmacology**   * Identifying glucocorticoids and mineralocorticoids. * Recognizing the main glucocorticoid drugs. * Understanding the pharmacological actions and mechanism of action of the major corticosteroid drugs. * Describe the main clinical indications and adverse effects of the commonly used corticosteroid drugs. | * **Identifying the anatomical, histological, embryological physiological aspects of the suprarenal glands and their hormones.** * **Understanding the biochemical, immunological and pathological concepts of diseases of the suprarenal glands with reference to impacts on clinical aspects** * **Recognizing the pharmacological aspects of synthetic corticosteroids** |
| **Physiology**   * Identifying the endocrinal cells of the pancreas and physiological actions of their secreted hormones. * Describing the basis of type 1 and type 2 diabetes mellitus.   **Biochemistry**   * Identifying hormones that promote the influx and efflux of glucose, fat and protein into and out of energy storage pools and their impact on the uptake of glucose by tissues. * Describing the mechanisms involved in the control of flow of intermediates in the metabolic pathways * Recognizing the “organ map” that traces the movement of metabolites between tissues * Understanding the alterations in the metabolism of the liver, adipose tissue, muscles and brain in the absorptive state * Discussing the motion of exchange of substrates among liver, adipose tissue, muscle and the brain to maintain adequate glucose blood level in case of fasting * Describing the changes in metabolic fuel utilization that occur in long and short term fasting and in acute and sustained exercise. Understand how increases or decreases in hormone secretion produce these changes. * Understanding an expanded and clinically useful vision of whole body metabolism * Describing the secretion and regulation of insulin secretion * Verifying the effects of insulin on carbohydrate, protein and fat metabolism. * Discussing the biochemical aspects of glucagon as regards its target actions, factors that influence its secretion and regulation of secretion. * Identifying in brief the metabolic actions of catecholamines, thyroid hormones, glucocorticoids and growth hormones as diabetogenic hormones. * Describing the biochemical aspects of both types of diabetes mellitus * Explaining the metabolic changes of diabetes mellitus with reference to implications on clinical aspects. * Understanding the diagnostic aspects of diabetes mellitus * Verifying the biochemical bases of management of diabetes mellitus.   **Immunology**   * Explaining the mechanisms of the autoimmune destruction of the pancreatic islets of Langerhans.   **Pathology**   * Discussing the pathological effects of diabetes mellitus on different tissues and organs of the body with impact on clinical features.   **Pharmacology**   * Understanding the strategies of the pharmacological treatment of type 1 and type 2 diabetes mellitus. * Verifying the role of insulin as a medication in treating diabetes mellitus. * Describing the pharmacological aspects of oral hypoglycemic drugs as regards classification, mechanism of action and adverse effects. | * **Understanding the role of the endocrine system in the metabolic regulation of fed/fast cycle** * **Identifying the physiological and biochemical aspects of the endocrine pancreas and its hormones (insulin and glucagon hormones).** * **Recognizing the biochemical, immunological, pathological and pharmacological aspects of type 1 and type 2 diabetes mellitus and their complications with emphasis on their impact on clinical features, diagnosis and management.** |
| **Biochemistry**   * Recognizing the meaning of obesity * Understanding the concepts of diagnosing obesity * Explaining the factors causing obesity * Discussing the implications of the biochemical bases of obesity on the features of clinical pictures of patients with focus on the main complications of obesity. * Describing the biochemical and clinical features of metabolic syndrome. | * **Describing the biochemical, genetic and clinical aspects of obesity and metabolic syndrome** |